

# **OPERATION MANUAL**

## **BRC500**

## **BRC550**

### **Bench Mounted Lathe**

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Manual P/N 035-80470-00

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# I. Introduction

Thank you for your purchase of a BRC500/550 brake lathe. Congratulations on your choice! The BRC500/550 is designed to outperform every other comparable brake lathe in all respects.

The BRC550 is just like the BRC500 except that the BRC550 comes with an exclusive RTI feature that we call "offset step feed". The offset step feed can be turned on or off. When off, the BRC550 operates in the same way as the BRC500. When the offset step feed is on, the feed for the brake disc cutting tools is turned on and off intermittently so as to create a non-directional finish automatically. Non-directional finish is normally only an issue when cutting at high feed rates. The BRC500 when set at low feed rates for a finish cut will produce a surface finish so good, that no directional pattern is noticed.

The BRC500 was designed as a completely new product, with the new requirements for brake disc turning for modern late model automobiles and light trucks in mind. The BRC500 is designed to minimize run out. In fact "near zero" run out can be easily achieved. Minimizing brake disc run out is an important aspect of modern brake service. Additionally, the BRC500 is designed to allow you to produce a surface finish that is superior to that on most new rotors. The BRC500 can consistently produce better than 35 micro inches where most other lathes can do no better than 40 or 50 micro inches. This smooth surface finish is required for fast break in and maximum stopping power. Brake lathes designed in the past (even many that are sold today) cannot in most cases match the results of the BRC500.

Another major design innovation with the BRC500 is the simplicity of the set-up using a new concept in adaptor and arbor design. You will note that the BRC500 uses a special "hub surface locator" along with a special high mass "outboard supporting cone" and a special 1 3/16" (30 mm) "big arbor". With this one basic standard set-up, composite and hubless rotors with a hat diameter of less than 6.95 inches (176 mm) can be turned--this set-up and the big arbor with 40% more strength than competitor's arbors is one of the secrets to achieving near zero run out and a superior finish. For larger rotors on HD trucks, a larger set of adaptors is required as an option--the set-up being similar. For hub-type rotors, a set of bearing race cones are supplied as standard. Drums are set-up in a manner almost the same as with rotors. Changeover time from drums to rotors or from rotors to drums is less than one minute.

Running the BRC500 is simple. It can be set for one of two spindle speeds. In most cases you will use the 110 RPM slow speed, but by making a fast belt change, the speed can be increased to 220 RPM to allow an extra superior finish on small passenger car rotors. The BRC500 can be used as a "single pass-one cut" machine by selecting a feed rate setting of 2.5-3. This is the recommended technique for drums. However, RTI recommends a "two pass" machining process for rotors, with a setting of 5-6 for a rough "foundation" cut just deep enough to clean up the rotor, and an extra fine finish cut, with a depth of only 0.001-0.002" (0.025-0.05 mm) per side and a setting for the feed of 1, taking full advantage of the special electronics and cutting tool design of the BRC500/550. This two pass technique will not remove any more material than necessary, and even though it may take a few minutes longer, it will result in a more perfect rotor in every respect.

The precision machined components of the BRC500/550 are produced by our affiliate, Hunger in Germany, using the most modern and sophisticated machine tools in the world. For more than 30 years, Hunger has been the leading automotive brake lathe manufacturer in Germany. The electrical controls are made in the USA, with final assembly of the electrical control components and assembly/testing of the complete lathe done by RTI in the USA.

## II. Safety

Before we go to the next step, some reminders about safety

### A. Avoid a major injury because of an unexpected start-up!

The BRC500 comes with a special mushroom type red “off/stop” switch. Be sure that this switch is always pushed in when the lathe is not operating. This is particularly important when mounting rotors or drums on the lathe or when changing the belt/s. When pushed in, even if someone pushes the green “on/start” button, the lathe will not start. The “off/stop” switch must be pulled out before the lathe can start.

### B. Avoid a major injury from rotating machinery!

The BRC500 has a 1 HP spindle motor with a great deal of power and torque. Do not wear loose clothing that could be entangled in the rotating parts. Be sure that long hair is properly secured so that it can not be entangled in the rotating parts. Do not place any part of your body near the rotating parts of the BRC500 when in operation. Always be aware of the location of the red emergency stop switch so that the lathe can be stopped immediately.

### C. Protect your eyes!

Small metal chips will fly off from the rotor or drum during machining. Be sure to wear your safety glasses at all times when the BRC500 is in operation. Use the same safety glasses that you are required to use when grinding metal.

### D. Avoid possible electrical shock or unsafe operation!

Like any electrical appliance, never operate the BRC500 when it is wet, or when you are standing in water. Always unplug the BRC500 when servicing the electrical parts of the BRC500. Be sure the receptacle for the electrical plug is a three prong grounded type, that it is the correct voltage for the BRC500/550 (110V, 60Hz in the North America), that it is protected by a fuse or circuit breaker with the correct rating (15 Amp maximum in North America), and that it is protected with a Ground Fault Interrupter (GFI) device. The BRC500/550 is protected by a fuse. Replace this fuse only with one that is the same rated capacity.

### E. Avoid all fire hazards!

The BRC500 is equipped with a special thermal overload device for your safety. However, if for any reason the lathe spindle is jammed or locked up and stops suddenly, be sure to turn the power off and unplug the lathe immediately, before fixing the cause of the problem.

### III. Checking out the parts

A. The BRC500/550 lathe comes standard with:

- Main lathe housing assembly
- Foundation mounting bolts (Qty=4)
- 30 mm diameter Arbor with four Allen head cap screws
- Standard Adaptors (See Figure 1)
- Large open end wrench for Arbor nut
- T-Handle wrench for square locking screws on cutting tip holders and bars
- Small Allen Wrench for locking belt pulley
- Hand-held mini-lubrication pump for slideway nipples
- 15 mm (1/2") Positive Rake disc cutting tip holders (Qty=2, one right & one left)
- Positive Rake Cutting Tips (Qty=10)
- Drum cutter bar with Tip Holder
- Vibration dampening rubber ring for discs
- Vibration dampening belt for drums
- Cleaning brush

B. The optional bench comes with:

- Top Panel
- End Panels (Qty=2)
- Mid Panels (Qty=2)
- Nuts and bolts for assembly
- Assortment of studs for storage of accessories

C. The optional merchandising and light kit comes with:

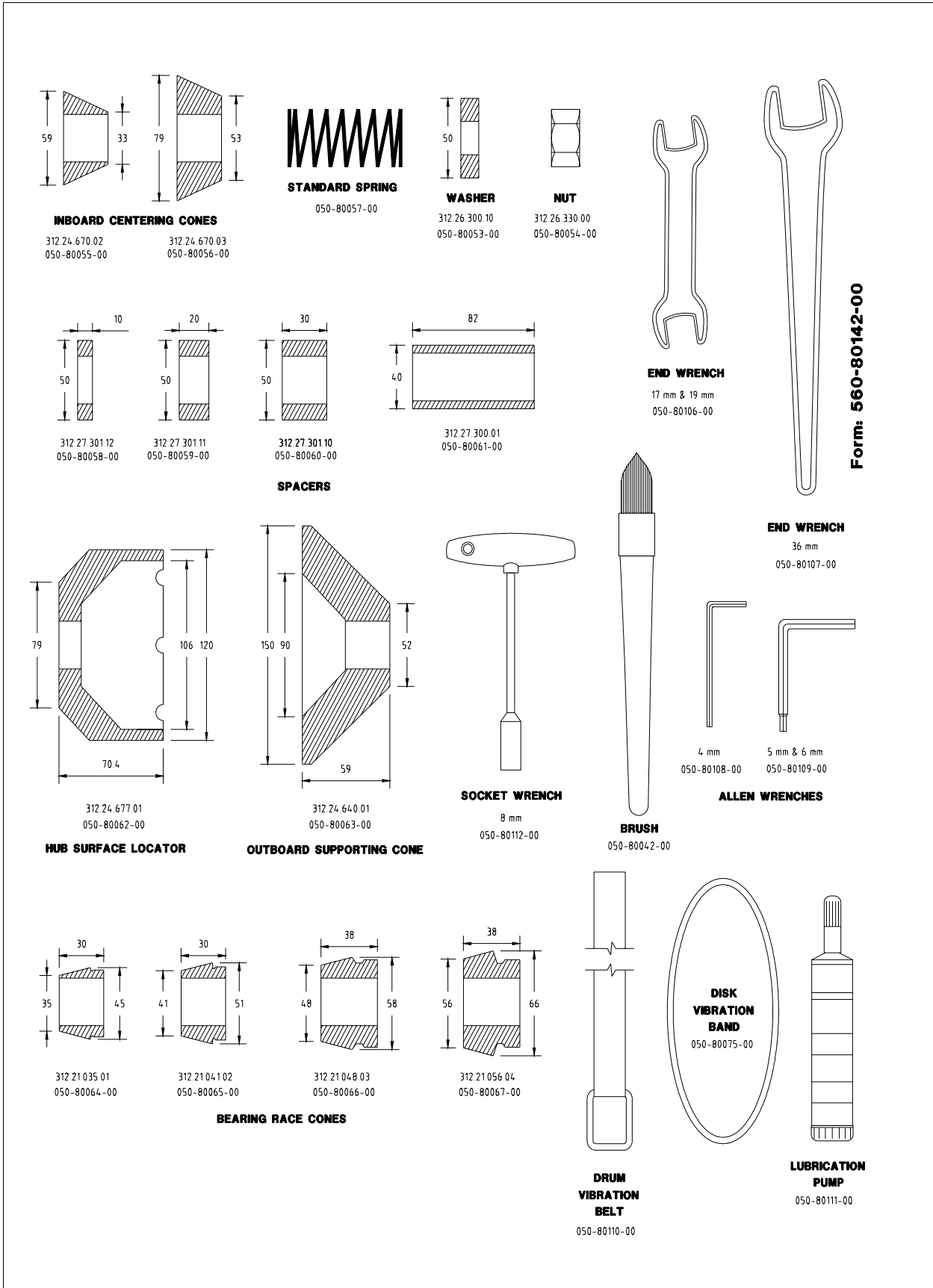
- Uprights (Qty=2)
- Peg type back board
- Sign
- Flourescent light
- Chains for hanging light (Qty=2)
- Nuts and bolts for assembly

D. The optional HD truck adaptor kit includes (See Figure 2):

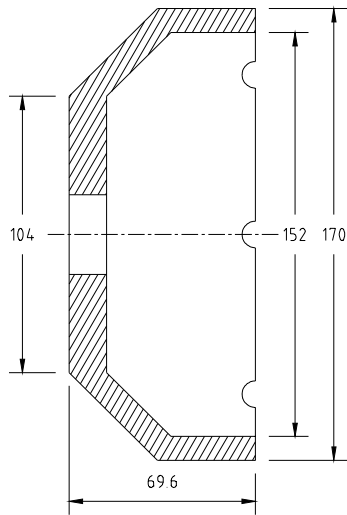
- Hub Surface Locator for rotors with inside hat diameter greater than 6.95" (176 mm)
- Outboard Supporting Cone to match the large Hub Surface Locator
- The 3-5/8" to 4-7/8" (92-123mm) Inboard Centering Cone should be ordered separately.

**Call RTI or your distributor for other accessories that are available.**

**Figure 1** Standard Accessories

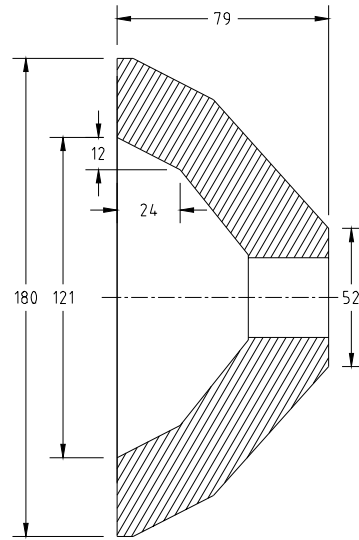


## Figure 2 Optional Accessories



**HUB SURFACE LOCATOR**

312 24 275 02  
050-80068-00

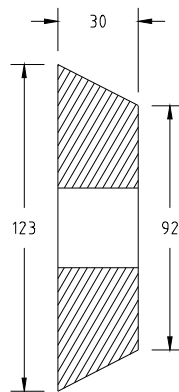


**OUTBOARD SUPPORTING CONE**

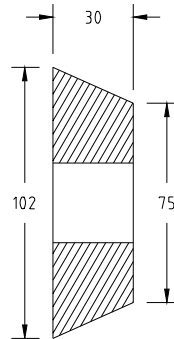
312 24 281 01  
050-80071-00

### TRUCK ADAPTER KIT

350-80008-00



312 24 275 03  
050-80069-00



312 24 670 04  
050-80070-00

### INBOARD CENTERING CONES

## IV. Initial Set-Up

**A. Cleaning.** The BRC500/550 is shipped with a rust preventative material on the unpainted surfaces. Clean these surfaces, removing the rust preventative with a cleaning solvent. Do not use a solvent that will dissolve the paint. Do not remove grease from the Feed Screws. After cleaning, apply a light machine tool oil to lubricate the cleaned surfaces. You will need to move the tool slide outward to its maximum extension and move it side to side with the two hand wheels. (Be sure the black feed engagement knobs in the hand wheel hubs are pulled out.) Then, using the supplied hand-held mini-lubrication pump, inject a small amount of oil in the slideway nipples. (This cleaning and lubrication should be done periodically as part of normal maintenance.)

**B. Mounting.** The BRC500/550 can be lifted using the eyebolt supplied, installed in the front of the main lathe casting. (Caution, the tool slide should be as close to the main lathe housing as possible. If not the unit may tend to tip over when lifting or moving before it is mounted on the bench.) The BRC500/550 can be mounted to a heavy duty work bench. The (4) special bolts are supplied with the lathe and are mounted through the bench to the bottom surface of the main lathe casting. An optional heavy duty steel bench designed for the BRC500/550 is available from RTI. In addition, an optional merchandising kit, with a backboard and 46" fluorescent light is also available from RTI.

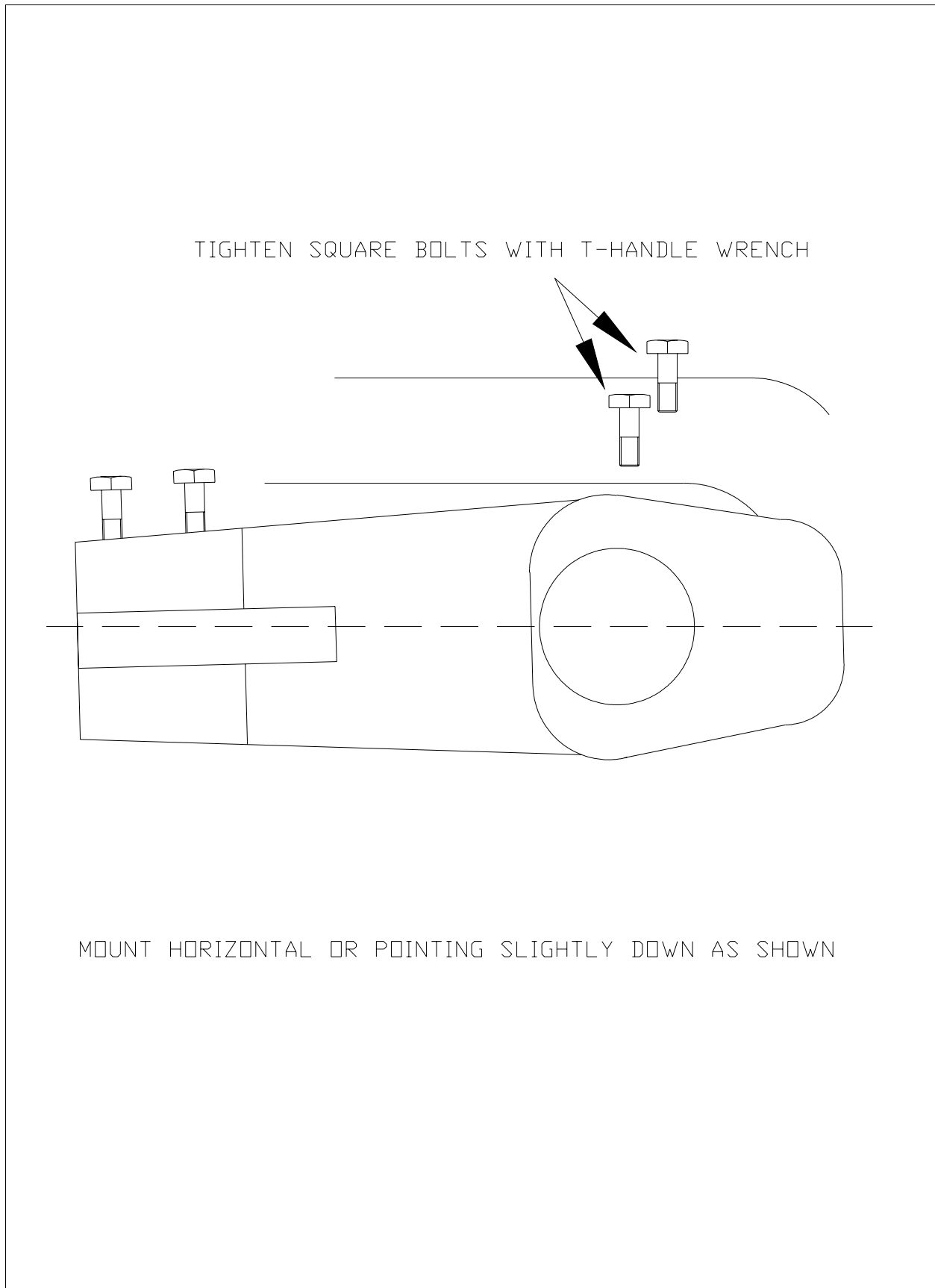
**C. Installing the Arbor.** The precision arbor flange is mounted to the spindle flange using (4) special Allen head cap screws. Be sure the arbor flange and the spindle flange are clean. The arbor flange mounting screws must be tightened securely to 30-35 lb-feet of torque in a cross sequence using a 6 mm Allen Wrench. A torque wrench is recommended. The threads for the arbor flange bolts are right hand and those on the end of the arbor are left hand, so you can use the arbor nut to hold the arbor with the arbor nut wrench supplied when tightening arbor flange mounting screws. Clean the threads of the bolts and the spindle flange, then use blue Loctite on the threads of the screws to insure they remain tight. They should be checked periodically as part of normal maintenance. If the cap screws are not tight, vibration and a poor surface finish when turning drums and rotors will result. One important aspect of the BRC500/550's precision is the correct torque of the arbor flange mounting screws.

**D. Installing the Cutting Tool Holders.** The BRC500/550 comes with an extra strong and rigid cutting tool holder assembly. The cylindrical bar, with the flat machined portion on top, is to be inserted into one of the large cylinder bores of the cross slide. The inner bore, closest to the main housing is for extra small rotors. The outer bore is for medium and large rotors. Use the outer bore for most rotors. Clean all unpainted surfaces on the bar, inside the bores, and on the tool holder arms as well as the tip holders and tips to be installed, removing the rust preventative with a cleaning solvent. Do not use a solvent that will dissolve the paint on the painted surfaces. After cleaning, apply a light machine tool oil to lubricate the cleaned surfaces. After inserting the bar into the bore so that the bar is approximately flush with the right side of the bore, and the tool holders are horizontal or pointing slightly down, tighten the small square lock nuts using the T-Handle wrench (See Figure 3a). Then, install the tips on the tip holders with the screws provided. (With positive rake tips, be sure the tips are right side up and the back face is flat against the tip holder machined back surface.) Then install the tip holders on the tool holder arms, tightening the square lock nuts with the T-Handle wrench. (See Figure 3b) This set up is now almost ready for cutting brake rotors/discs. The drum set up will be discussed later. Clean all other accessories, including the drum cutting tool holder and apply a light oil.

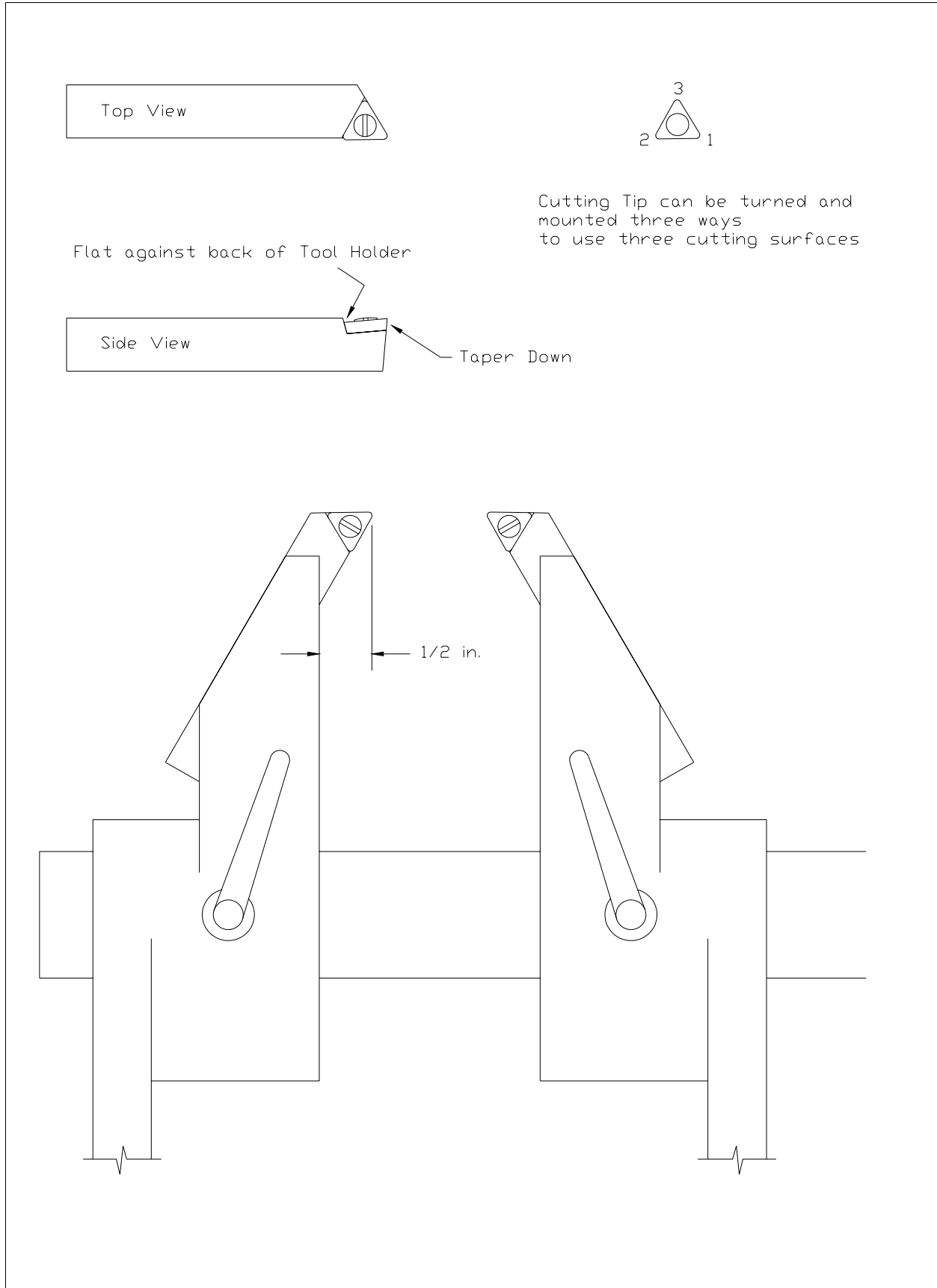
**E. Remove the black plastic transmission cover and position the belt on the slow speed (110 RPM) setting. (See Figure 4) Re-install the transmission cover.**



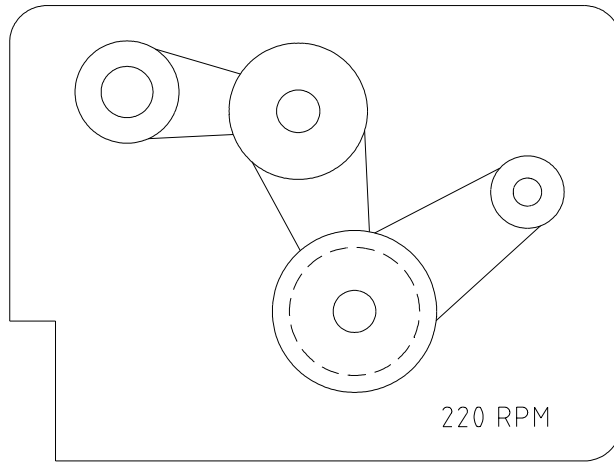
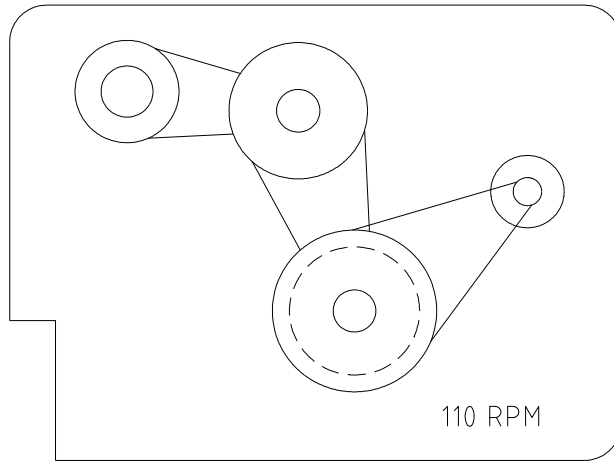
**Figure 3a** Tip holder and cutting tip set-up for rotors (positive rake)



**Figure 3b** Mounting the Tool Holder



**Figure 4** Drive Belt position and adjustment.



## V. Cutting Brake Rotors/Discs

**A. Hubless Rotors.** Figure 5 shows the most common adaptor set-up. Install the Hub Surface Locator onto the arbor with the smallest diameter flat surface against the arbor flange. The largest diameter flat surface with the slots now simulates the flat surface of the hub of the vehicle. (Unlike other lathes, on the BRC500/550, special care has been taken to grind both surfaces of the Hub Surface Locator so that there is near zero run out of the large diameter flat surface.) Now install the Spring, Inboard Supporting Cone and brake rotor/disc as shown. The Inboard Supporting Cone will be pushed toward the rotor by the spring and will keep the rotor centered. Install the Outboard Supporting Cone and clamp the total assembly by installing spacers as needed and tightening the left hand thread of the arbor nut. Be sure to spacers extend slightly past the arbor shoulder, use the special washer, and do not over-tighten the nut. Figure 5 shows the set up using the standard adaptors for brake rotors with an inside hat diameter less than 6.95" (176 mm). Figure 6 shows the same set up using the optional HD truck adaptors for larger rotors. The standard adaptors can be used for larger rotors, but in some rare cases the optional adaptors are needed to minimize vibration on extra large rotors with extra thin hat web sections.

**B. Composite Rotors.** One revolutionary aspect of the special adaptors designed for the BRC500/550 is that these adaptors work very well for composite type rotors as well. No special care or set up for composite rotors is required. The secret is the fact that the rotor hat web section is clamped tightly with full metal to metal contact between the Hub Surface Locator, rotors hat web, and the Outboard Supporting Cone.

**C. Vibration Dampening.** The BRC500/550 comes with a Vibration Dampener rubber ring. This should be installed onto the largest outside diameter of the rotor. There are many other types of vibration dampener types, including a device using two (2) rubbing blocks. On any rotor larger than 10" (255 mm) some type of vibration dampening device is recommended to avoid excessive high pitched noise or vibration when machining the rotor.

**D. Rotor and Hub Assembly.** See Figure 7 for the set up for rotors with the hub installed. Here instead of clamping to the rotor hat web section, the clamping is to the bearing races in the hub. To insure that there is no abnormal run out, first be sure that the bearing races are in good condition with no pitting and then after first tightening the arbor nut, loosen it very slightly and re-tighten.

**E. Check Spindle/Arbor/Rotor Rotation.** Plug the power cord into a receptacle with the correct power rating and safety features as described in the Safety section of this manual. Be sure all items are clear of the spindle/arbor/rotor assembly, and be sure that the black knobs in the center of both hand wheels are pulled outward. The start the lathe momentarily by pushing the green start button. Check for proper rotation. Stop the spindle/arbor/rotor's rotation by pushing the red mushroom stop switch.

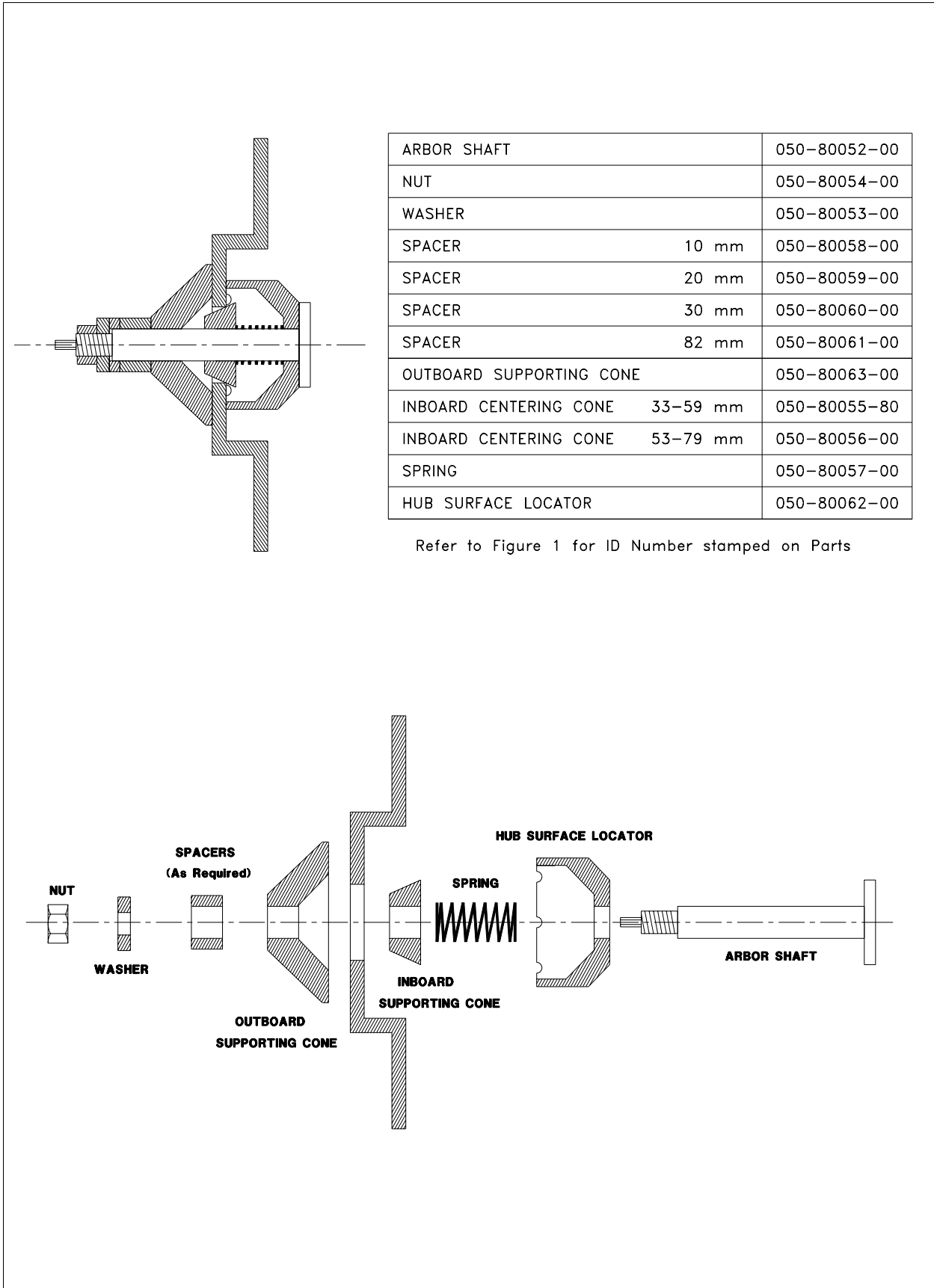
**F. Setting up for cutting.** With the black knob inside the hand wheel pulled out, manually turn the wheel, moving the cutting tool slide and the cutting tips to a position almost touching the rotor's largest diameter. Note that there are two locking levers, one on the top of each cutting tool holder along with a graduated adjusting knob to the left. By locking down one lever, with the other loosened, turning the adjusting knob will move the tool holder with the lever loosened. Move each tool holder so that the cutting tips are very close, but not touching each side of the rotor--then move the tool slide and cutting tips so that they are approximately 1/4" (6 mm) inside the rotor's largest diameter braking surface.

**G. Initial surface cut.** With the cutting tips approximately 1/4" (6 mm) inside the rotor's largest diameter braking surface, with each tip close but not touching the rotor's surfaces, start the lathe by pushing the green start switch. With the rotor now rotating, by locking down one lever of the two tool holder locking levers, with the other loosened, turn the adjusting knob to move the tool holder with the lever loosened until the cutting tip just "kisses" the rotor surface. This can be determined by sound and sight. Lock down the lever and loosen the other tool holder lever, moving the cutting tip with the adjusting knob similarly until the second cutting tip also just "kisses" the rotor surface. Now, manually move the tool slide outward by turning the hand wheel very slowly. This will remove any "ridge" on the outside edge of the rotor. (If the ridge is particularly large, this may require that the cutting tips be moved outward and then inward with several passes. In this case, after removing the ridge, stop the lathe rotation and repeat the initial surface cut set up.)

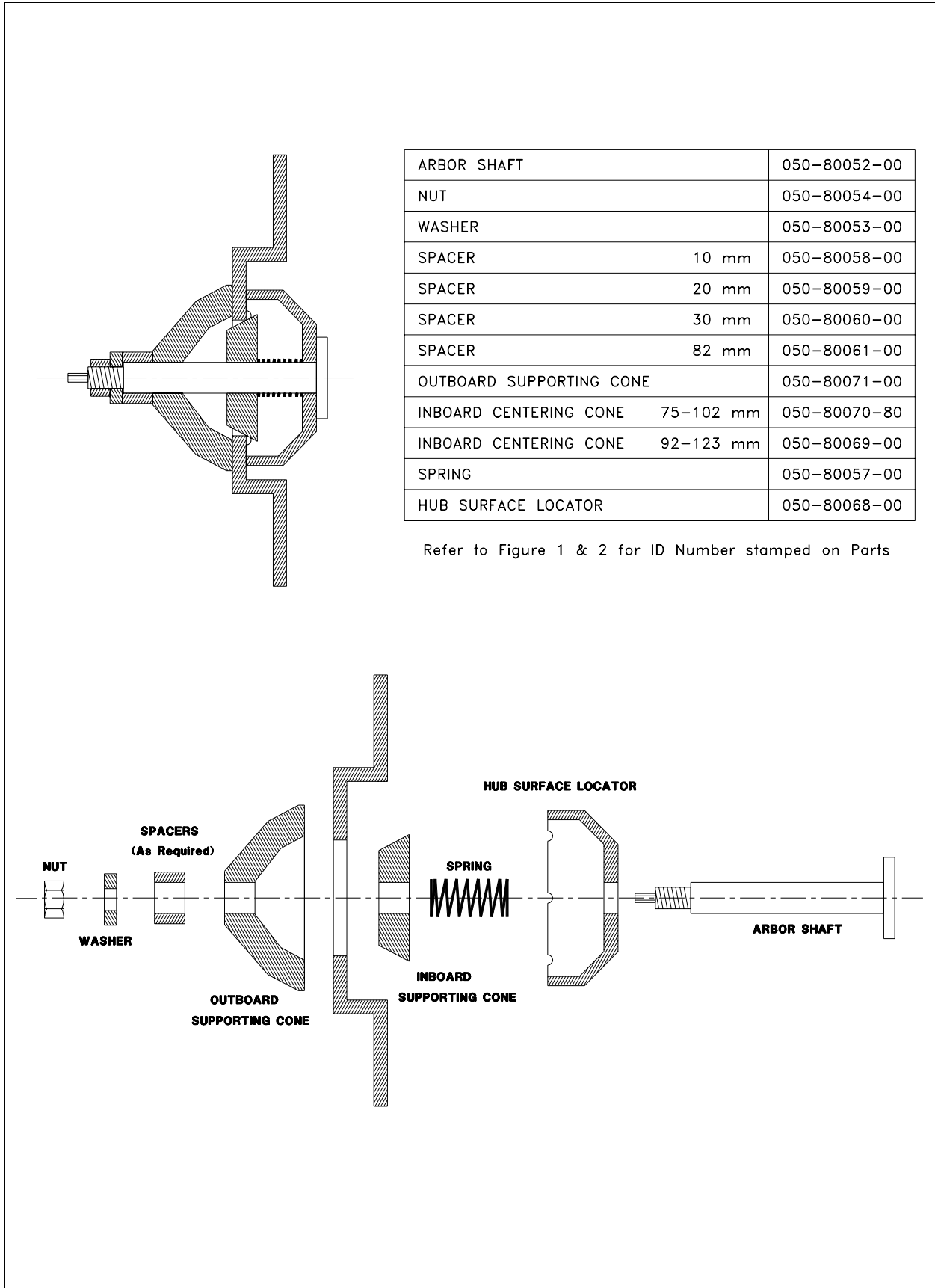
**H. Checking rotor surface.** Once the initial surface cut set-up is complete and the ridge is removed, manually move the tool slide inward by turning the hand wheel very slowly. (If the depth of cut increases significantly as the cutting tip moves inward, the rotor is warped or tapered. In this case, stop and move the cutting tool outward away from the rotor surface to compensate.) When both cutting tips reach past the smallest diameter of the braking surfaces, stop the manual rotation of the hand wheel. (Note that it is common for one cutting tip to reach this point before the other. As long as one tip does not touch the rotor hat, continue until the manual rotation of the hand wheel until both tools are inside the edge of the braking surfaces on both sides of the rotor. If one tip hits the rotor hat before this is accomplished, it will be necessary to slide that cutting tip's tip holder back by loosening the two square locking nuts.)

**I. Setting Depth of Cut and Speed.** Note that the adjusting knob is calibrated with numbered "large" graduations. These long lines denote 0.004" (0.10 mm) of tool holder and tip movement. The shorter lines half way in between therefore denote 0.002" (0.05 mm). At this point, the operator has the choice of a "one pass" or a "multi-pass" technique. In order to perform a "one pass" cut, the operator must estimate the depth of cut that will remove run out, taper, and grooves noted during the rotor surface checked during manual hand wheel rotation, and to determine if that cut will or will not result in the rotor being too thin (Less than manufacturer's discard thickness.) Since this is a complex procedure to estimate the exact depth, without cutting more than is needed and wasting valuable rotor thickness, it is recommended that the a "multi-pass" technique be used. To perform the first pass of a "multi-pass" technique, move each cutting tip inward 0.004" (0.10 mm) or one large graduation by unlocking one lever, rotating the adjusting knob, locking that lever and repeating the procedure for the other tool holder. (Note the total movement of the knob should be 0.008" (0.20 mm) after both tools are moved.) Now rotate the feed control knob to the setting of "6 = Rough", set the feed selection to "disc=out", and push the black knob in the center of the handwheel inward. The tools will move outward rapidly while cutting. (For a "one-pass" technique the depth set is as required and the feed control setting is "2-3=medium".) If this first "rough cut" does not cut the entire surface of the rotor and remove all grooves, then move the tool slide inward manually and repeat the procedure as required. Don't forget to pull out and then push in the black knob. Once there is a rough cut surface over the entire rotor surface and all grooves are removed, now check to see if the rotor is too thin. If another at least another 0.008" (0.20 mm) could be removed without the rotor being thinner than the discard thickness, then up to 0.004" (0.10 mm) can be removed (0.002" = 0.05 mm each side) leaving some material for future wear of the rotor. If so, move the tool slide inward manually and set each tool for a 0.002" (0.05 mm) "finish cut". Set the feed control at "1 = Fine". (For the BRC550 also engage the Offset Step Feed.) This will result in an extremely smooth surface finish.

**Figure 5** Mounting a Hubless or Composite Rotor with less than 6.95" (176 mm) inside hat diameter



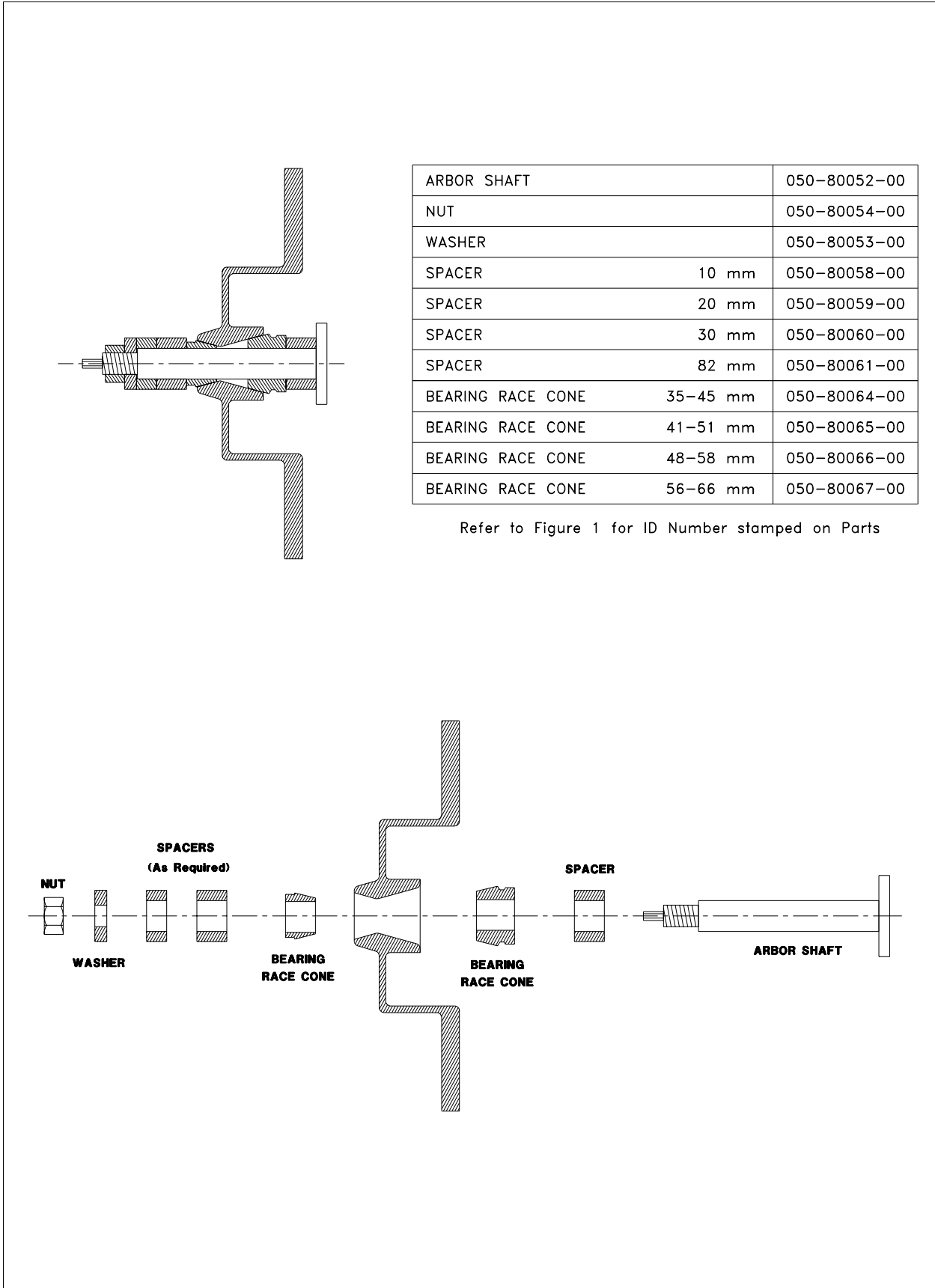
**Figure 6** Mounting a Hubless or Composite Rotor with larger than 6.95" (176 mm) inside hat diameter



ARBOR SHAFT		050-80052-00
NUT		050-80054-00
WASHER		050-80053-00
SPACER	10 mm	050-80058-00
SPACER	20 mm	050-80059-00
SPACER	30 mm	050-80060-00
SPACER	82 mm	050-80061-00
OUTBOARD SUPPORTING CONE		050-80071-00
INBOARD CENTERING CONE	75-102 mm	050-80070-80
INBOARD CENTERING CONE	92-123 mm	050-80069-00
SPRING		050-80057-00
HUB SURFACE LOCATOR		050-80068-00

Refer to Figure 1 & 2 for ID Number stamped on Parts

**Figure 7** Mounting a Brake Rotor with Hub





## VI. Cutting Drums

**A. Mounting.** Mounting a brake drum on the arbor is similar to mounting a brake rotor/disc. See Figures 8 and 9. In order to have clearance for the drum, you will first need to loosen the (2) square locking screws holding the rotor cutting tool holder assembly and either: 1) Remove the entire rotor cutting tool holder assembly from the tool slide, or 2) Rotate the assembly 180 degrees so the tool holders point away from the arbor and re-tighten the locking screws. Rotating the assembly is recommended and will give enough clearance for all but larger drums.

**B. Install and Position Cutting Tool.** Move the tool slide inward manually. Install the drum cutting tool bar in the slot of the tool slide. Position the bar so that the cutting tip extends toward the drum, past the edge of the tool slide as necessary to cut the entire drum surface. Then lock the bar in place with the square locking screws. Normal operation is with the large drum cutting tool toward the drum. (See Figure 10) For larger drums, it may be necessary to reverse the position of the cutting tool bar, using one of the rotor cutting tool holders installed on the bar as shown.

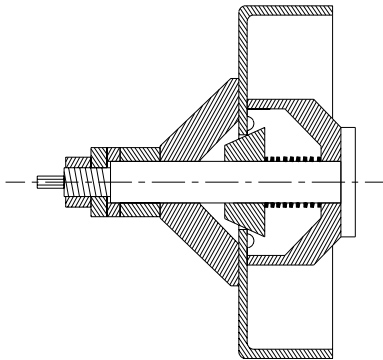
**C. Vibration Dampener.** Install the vibration dampening belt to minimize noise and vibration.

**D. Setting Depth of Cut and Speed.** Using the hand wheel on the right side of the lathe, move the cutting tip inside the drum and position the cutting tip 1/4" (6 mm) inside the lip of the drum. Manually remove the ridge and move the tool manually inward using the same general procedure as with rotors/discs so as to establish the initial cutting position. The manual "feed" movement of the cutting tool is with the side handwheel that moves the tool slide side to side. Depth of cut of the cutting tool is set manually using the handwheel in the front of the lathe that moves the tool slide in and out. The graduated hub on this handwheel will indicate the precision movement to set the depth of cut. Once the depth of cut is set as desired, set the feed at "2-2.5=medium". Set the feed selector switch to "left to right" and push the black knob in the center of the side handwheel inward so that the tool slide moves to the right automatically. The same general procedures as to checking for discard thickness of a rotor/disc apply to the discard diameter of a drum. The same general issues of "one-pass" and "multi-pass" cutting also apply. The major difference of operation is simply that the auto feed for drums is from left to right instead of in to out and the depth of cut is set using the outer handwheel.

## VII. Locking the Tool Slide

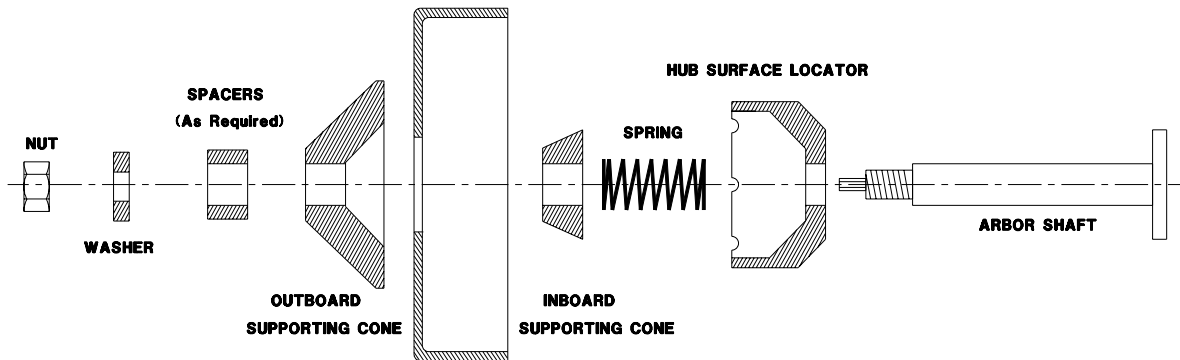
In order to ensure the very best precision, the BRC500/550 has the provision to allow the operator to lock the tool slide during cutting. (See Figure 11) This is more important for cutting rotors where near zero run out is desired. Therefore the locking provision for the side to side movement of the tool slide during rotor/disc machining is accomplished by tightening the black plastic knob. To lock the in/out movement of the tool slide when cutting drums, an Allen type wrench is required. The tool slide locks push a small aluminum pad against the tool slide guide. Do not over tighten the lock or the pad may be damaged. Be sure the tool slide lock is only engaged during the final cut and is disengaged when the cut is complete!

**Figure 8** Mounting Hubless Drums

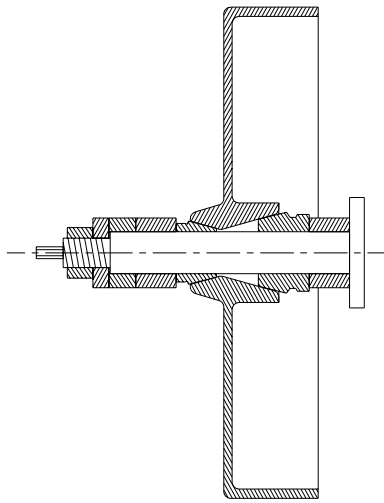


ARBOR SHAFT		050-80052-00
NUT		050-80054-00
WASHER		050-80053-00
SPACER	10 mm	050-80058-00
SPACER	20 mm	050-80059-00
SPACER	30 mm	050-80060-00
SPACER	82 mm	050-80061-00
OUTBOARD SUPPORTING CONE		050-80063-00
INBOARD CENTERING CONE	33-59 mm	050-80055-80
INBOARD CENTERING CONE	53-79 mm	050-80056-00
SPRING		050-80057-00
HUB SURFACE LOCATOR		050-80062-00

Refer to Figure 1 for ID Number stamped on Parts



**Figure 9** Mounting Drums with Hubs



ARBOR SHAFT		050-80052-00
NUT		050-80054-00
WASHER		050-80053-00
SPACER	10 mm	050-80058-00
SPACER	20 mm	050-80059-00
SPACER	30 mm	050-80060-00
SPACER	82 mm	050-80061-00
BEARING RACE CONE	35-45 mm	050-80064-00
BEARING RACE CONE	41-51 mm	050-80065-00
BEARING RACE CONE	48-58 mm	050-80066-00
BEARING RACE CONE	56-66 mm	050-80067-00

Refer to Figure 1 for ID Number stamped on Parts

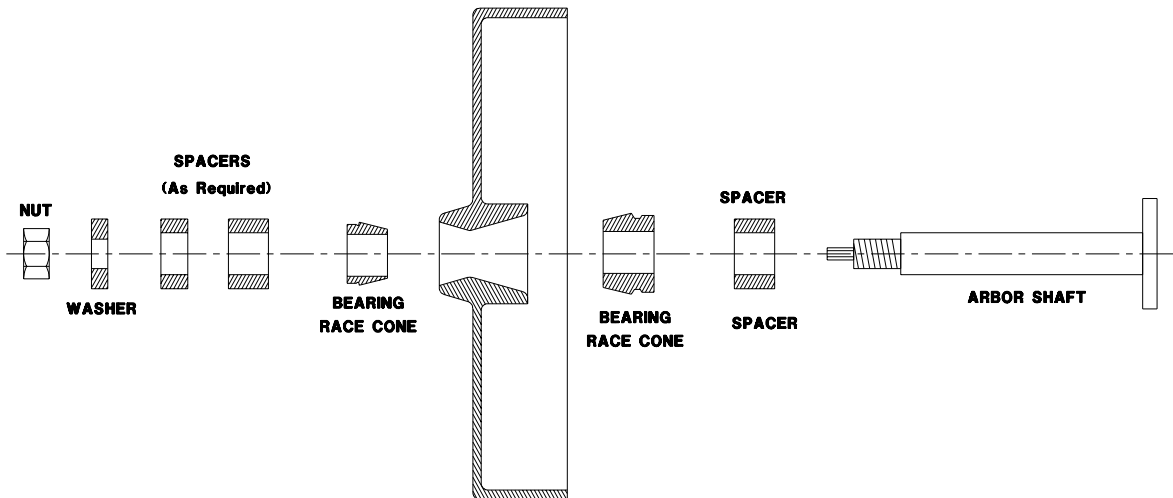


Figure 10 Set Up of Drum Cutting Tool

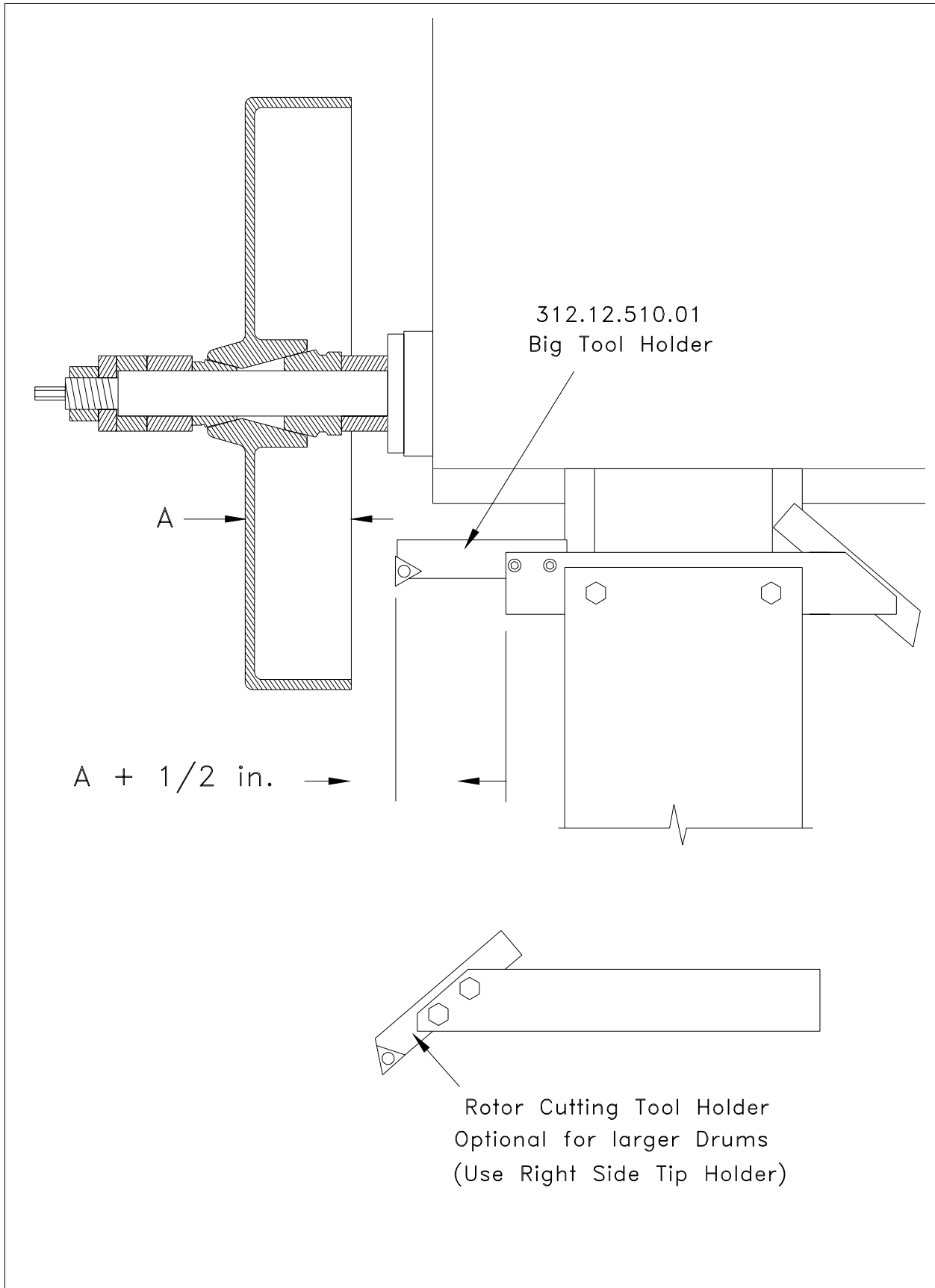
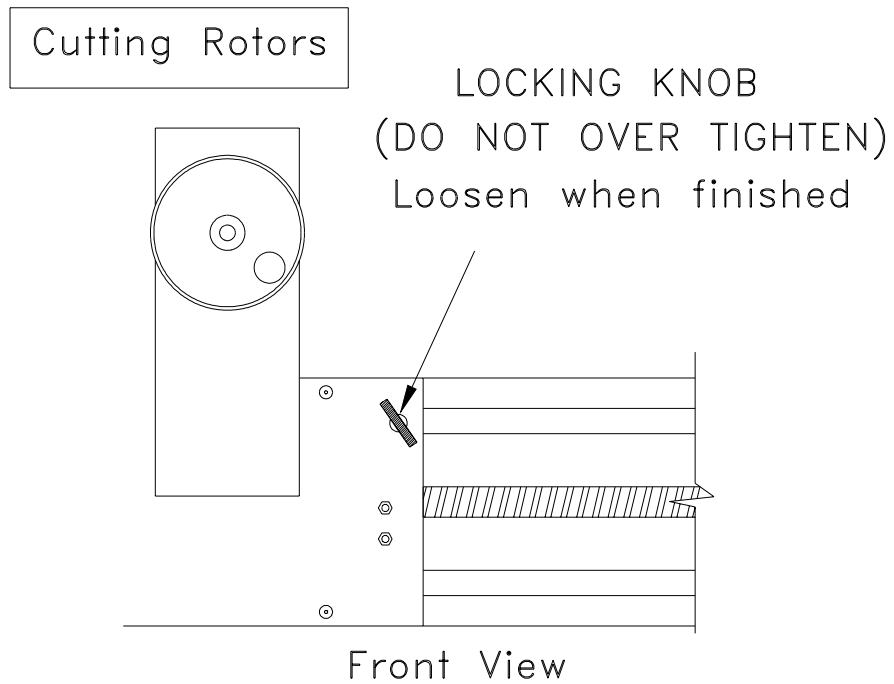
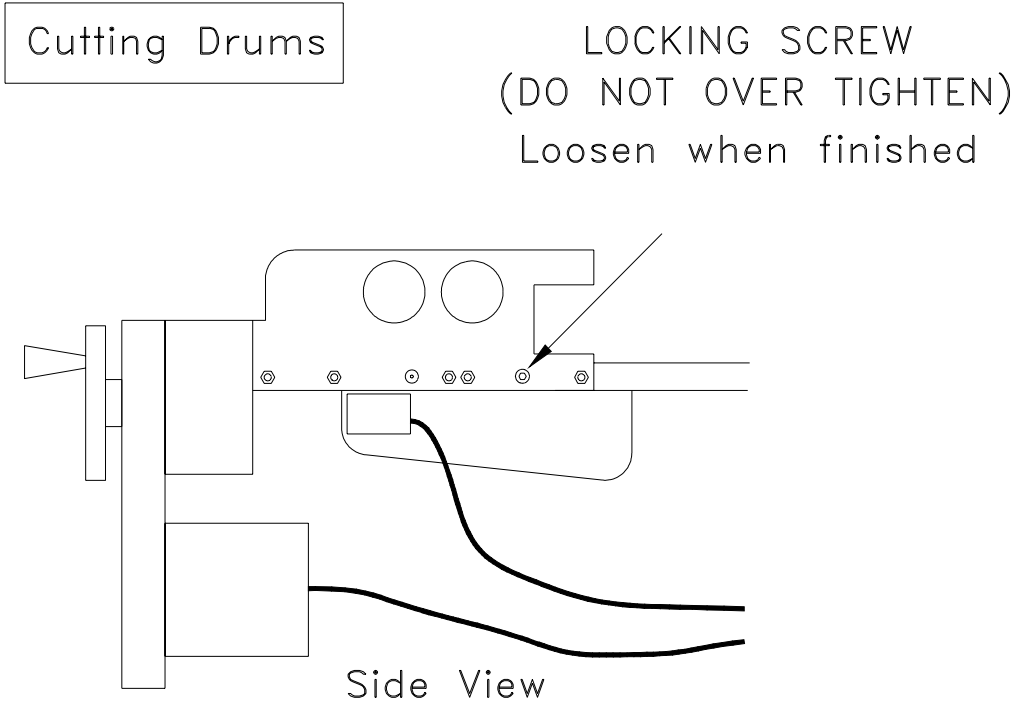


Figure 11 Tool Slide Lock



## **VIII. Changing Spindle Speed**

All drum cutting and most rotor cutting should be done at 110 RPM or the slow speed setting as shown in Figure 4. (This 110 RPM is faster than the slow and medium setting of most competitor's lathes.) For advanced level operation, cutting rotors with less than 10" (255 mm) the BRC500/550 is designed to allow for an extra fast 220 RPM fast setting. The faster speed will produce a better surface finish, but tool life will be reduced. To change the belt position and spindle speed, first loosen the Allen type lock screw on the pulley arm and then loosen and move the pulley arm stop adjustment screw to the right. Change the belt position, tighten and move the pulley arm stop adjustment screw to the left, locking the pulley arm by finally re-tightening the Allen type lock screw on the pulley arm. Be sure both the narrow primary belt and the wider secondary belts are both tight and do not slip. There should be about 1/16 " (1 mm) of movement in the belt when approximately 10 pounds (5 Kg) of force is applied in the middle of the belt. The belt should not be too tight. This is evident if more than 20 pounds (10 Kg) of force is required to deflect the belt or chain 1/16" (1 mm)

## **IX. Adjusting Chain**

The BRC500/550 uses a special roller chain for the final drive of the spindle so that the full 1 HP of the spindle motor can be used, with no vibration and no slippage. This chain may require adjustment during the life of the lathe. The correct tension will result in the chain deflecting from at least 1/16" (1 mm) to a maximum of 1/4" (6 mm) when approximately 10 pounds (5 Kg) of force is applied to the middle of the chain. Too much play may result in vibration and excess noise. To adjust the chain, the top center pulley has an eccentric cam. To make the adjustment, the control box must be removed to gain access to the lock nut for the eccentric cam. Re-check the tension of the middle belt.

## **X. Changing Cutting Tips**

RTI's Positive Rake Cutting Tips have three corners. There is a top and bottom. The tips will only work when the top is up. When viewed from the side, the top is evident based on the fact that the taper should from the top edge to the bottom with the top edge protruding more. The cutting tip edge on each corner is worn and should be changed when the surface finish no longer meets requirements or when the corner is chipped or damaged. When one corner is worn, simply loosen the tip, turn it 120 degrees and re-install (See Figure 3).

## **XI. General Maintenance**

There is no suggested maintenance to the BRC500/550 other than: 1) Keep the entire lathe, especially the slideways, clean, removing cutting chips with the cleaning brush supplied after each use; 2) Clean and lube the slideways as noted in the Initial Set Up Section at least once per week; 3) Check belt and chain tension at least once per week; and 4) Lube the two feed screws and drive chain with a moly based grease, as needed.

## **XII. Technical Support**

For the life of the BRC500/BRC550, you are entitled to free over the phone technical support. Please call if you have any questions. Our number is 800-486-2321 or 717-840-0678 (Extension 259). If we are not immediately available due to extra heavy phone traffic, we will call you back the same day. (8 AM to 6 PM ET). We look forward to speaking to you. We are happy to hear from our customers.